

## TEXAS SPECIES OF *MIRABILIS* (NYCTAGINACEAE)

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### ABSTRACT

A taxonomic treatment of the Texas species of *Mirabilis* (s.l.) is rendered. Thirteen species are recognized: *M. albida*, *M. austrotexana* B.L. Turner, *spec. nov.*, *M. comata*, *M. gigantea*, *M. glabra*, *M. hirsuta*, *M. jalapa*, *M. linearis*, *M. longiflora*, *M. multiflora*, *M. nyctaginea*, *M. oxybaphoides*, and *M. texensis* (Coulter) B.L. Turner, *comb. et stat. nov.* This stands in marked contrast with the most recent accounts of the Texas species rendered by Reed (1969) and Correll & Johnston (1970), both treatments recognizing 29 species. All of the names used by these authors are appropriately accounted for in the taxonomic treatment, and a key to the Texas species is provided, along with maps showing distributions.

KEY WORDS: Nyctaginaceae, *Mirabilis*, *Oxybaphus*, Texas

*Mirabilis* (sensu lato) is a New World genus of perhaps some 50 or more species, mostly confined to North America (Heimerl 1934). Standley (1909, 1911, 1918) and others after him, segregated from *Mirabilis* several natural groupings such as *Allionia* L., *Hesperonia* Standl., *Oxybaphus* L'Herit., and *Quamoclidion* Choisy, treating these as genera. But Standley (1931) recanted and reverted to Heimerl's generic concept, and most recent workers have tended to accept *Mirabilis* in the broad sense (e.g., Pilz 1978; Le Duc 1993).

*Mirabilis* (s.l.) is well represented in the Texas flora, the most recent treatments recognizing 29 species (Reed 1969; Correll & Johnston 1970). Attempts to use either of the latter contributions is certain to induce taxonomic consternation of the most severe sort. This is largely due to the very superficial treatment accorded the group by Reed. His treatment placed considerable emphasis upon habit, leaf shape, and vestiture, characters which are very variable both within and between populations. He did little, if any, field work in connection with his study.



Indeed, Reed's treatment of *Mirabilis* for Texas is essentially unusable; his keys and annotations make little biological sense and, as noted in my comments under *M. austrotexana* B.L. Turner, one is left with the impression that he was not deeply involved with the taxonomic process in this instance, or else had little interest in providing a meaningful treatment with biological merit. It is unfortunate that Correll & Johnston chose to follow his treatment; this has caused a generation of workers, both professional and amateur, to throw up their hands in despair, myself included.

After many years of frustration in my attempts to identify *Mirabilis* species in Texas and northern México, I decided to start from scratch and work up the genus in this region based upon my own field experience, taxonomic concepts, and character analysis. In this I emphasized mainly fruit characters and placed relatively little emphasis upon leaf shape and vestiture. In addition, I attempted to relate morphological characters, whatever their nature, with ecogeographical variables. In short, an effort was made to recognize morphogeographical populational units that represent my best estimates of biological species. I was surprised and pleased by the results obtained. Instead of the 29 species proposed for Texas by Reed, only thirteen species seem deserving of specific status. This number might be increased to fourteen if one opts to recognize *Mirabilis dumetorum* Shinnery, but if the latter is to be accepted it must bear a newly constructed name, *M. latifolia* (= *Allionia latifolia* [A. Gray] Standl.). *Mirabilis dumetorum* appears to be a broad-leaved form of the widespread exceedingly variable *M. albida* (Walt.) Heimerl, as noted under the latter.

The following key should prove useful in attempts to identify the thirteen species recognized here. In combination with the maps provided, relatively little difficulty should be encountered in understanding my taxonomic views regarding this group in Texas, or elsewhere.

#### KEY TO TEXAS MIRABILIS

1. Perianths 3-17 cm long. .... (2)
1. Perianths 1-2 cm long. .... (4)
  2. Involucres with 3-10 flowers. .... *M. multiflora*
  2. Involucres with 1 flower. .... (3)
3. Perianths 10-17 cm long, mostly white. .... *M. longiflora*
3. Perianths 3-6 cm long, variously pink to purple, rarely white. . *M. jalapa*
4. Anthocarps ovoid, ribless, glabrous and essentially smooth; trans-Pecos. .... *M. oxybaphoides*



4. Anthocarps mostly ellipsoid, variously pubescent, or if glabrous then clearly ornate with ribs or tubercles. .... (5)
5. Anthocarps glabrous; stems stiffly erect, mostly glabrous and 1-2 m high; mostly sandy soils of northwestern Texas. .... *M. glabra*
5. Anthocarps to some extent pubescent, either pilose or short-glandular, mostly in silty or silty-clay soils (in sandy soils mainly in trans-Pecos, central, and southern Texas). .... (6)
  6. Leaves linear to linear-lanceolate, mostly 2-10 mm wide; anthocarps conspicuously and rather evenly short-pilose, only a smattering of much shorter glandular hairs present, if at all. .... *M. linearis*
  6. Leaves lanceolate to cordate, mostly 10-80 mm wide; anthocarps variously pubescent, but if so, the leaves ovate to cordate. .... (7)
7. Stiffly erect, simple-stemmed, robust herbs mostly 1-2 m high; mostly deep sandy soils of northcentral and southern Texas. .... (8)
7. Sprawling to erect herbs mostly 0.3-0.8 m high; mostly alluvial, silty clay in calcareous soils. .... (9)
  8. Anthocarps conspicuously pubescent with a mosaic of mostly tufted hairs ca. 0.5 mm long; stems strigo-puberulent, hairs strongly up-curved and eglandular; northcentral Texas. .... *M. gigantea*
  8. Anthocarps faintly pubescent with scattered pilose hairs ca. 0.3 mm long or less; stems pilose, hairs often glandular, or stems glabrous or glabrate; southern Texas. .... *M. austrotexana*
9. Anthocarps densely glandular-pubescent throughout with very short hairs; trans-Pecos. .... *M. texensis*
9. Anthocarps variously pubescent with well-developed eglandular pilose hairs, any glandular hairs much shorter and of secondary notability. (10)
  10. Stem leaves sessile or nearly so, densely hirsute; northwestern Texas. .... *M. hirsuta*
  10. Stem leaves various but usually to some considerable extent petio-late, glabrous to sparsely or moderately hirsute. .... (11)
11. Midstem leaves mostly 4-8 cm wide, the blades broadly obtuse, truncate or cordate at base; flowers mostly arranged in rather congested terminal clusters; northern Texas. .... *M. nyctaginea*



11. Midstem leaves mostly 1-4 cm wide, the blades gradually tapering upon the petioles, or abruptly truncate to cordate; flowers variously arranged but often in open divaricate corymbose panicles. .... (12)
12. Leaves mostly cordate; involucre melanic, pubescent with uniseriate multiseptate trichomes, at least the cross-walls purplish or blackish in color; Franklin Mts., El Paso Co., rare. .... *M. comata*
12. Leaves mostly lanceolate, broadly ovate to rarely cordate; involucre mostly not melanic, the trichomes with  $\pm$  white or tawny cross-walls; widespread and common. .... *M. albida*

*Mirabilis albida* (Walt.) Heimerl, Ann. Cons. Jard. Geneve 5:182. 1901. BASIONYM: *Allionia albida* Walt. *Mirabilis nyctaginea* (Michx.) MacMillan var. *albida* (Walt.) Heimerl, *Oxybaphus albidus* (Walt.) Sweet

*Allionia coahuilensis* Standl. *Mirabilis coahuilensis* (Standl.) Standl.  
*Oxybaphus coahuilensis* (Standl.) Weatherby

*Allionia grayana* Standl. *Mirabilis grayana* (Standl.) Standl.

*Allionia latifolia* (A. Gray) Standl. *Oxybaphus nyctagineus* (Michx.) Sweet var. *latifolius* A. Gray

*Allionia oblongifolia* (A. Gray) Small. *Mirabilis oblongifolia* (A. Gray) Heimerl. *Oxybaphus nyctagineus* (Michx.) Sweet var. *oblongifolius* A. Gray

*Allionia pseudaggregata* (Heimerl) Weatherby. *Mirabilis pseudaggregata* Heimerl. *Oxybaphus pseudaggregata* (Heimerl) Standl.

*Allionia rotata* Standl. *Mirabilis rotata* (Standl.) I.M. Johnst.

*Mirabilis albida* (Walt.) Heimerl var. *lata* Shinnars

*Mirabilis dumetorum* Shinnars

*Mirabilis entricha* Shinnars

*Mirabilis muelleri* Standl.

*Mirabilis pauciflora* (Buckl.) Standl. *Oxybaphus pauciflorus* Buckl.

As indicated by the above partial synonymy, and many more names not listed (*cf.* Reed 1969), *Mirabilis albida* is the most widespread highly variable species of *Mirabilis* in North America. This is probably due to its phenotypic plasticity and in large measure to its proclivity towards cleistogamic reproduction, presumably compounded by occasional hybridization with the many species with which it is sympatric. In any case, I accept a wide range of habit forms, leaf types, and vestiture in the complex. These various forms have been keyed and recognized as this or that species by Reed and yet others. But if



one examines carefully such plants they are very uniform as regards anthocarp shape, ornamentation, and vestiture. Characteristically, their anthocarps are markedly tuberculate, usually including the 4-5 ribs; at least to some degree, they are irregularly pubescent with tufted white hairs ca. 0.5 mm long; beneath the latter there is nearly always a minute layer of much shorter glandular hairs. Hairs of the latter type are not normally found in any large numbers on yet other species from Texas (for example, on anthocarps of *M. nyctaginea*, which has otherwise similar fruits to those of *M. albida*, nor are they found on fruits of *M. linearis* (Pursh) Heimerl, *M. glabra* (S. Wats.) Standl., or *M. austrotexana*, all of which might be confused with *M. albida* (given the aberrant individual among these). I am reasonably confident about my judgment with respect to the above treatment. I am, however, not especially sure of my relegation of *M. dumetorum* to synonymy. In spite of Shinnery's certainty about its specific status, I believe what he has done is to select broad-leafed, pubescent-stemmed forms of otherwise typical *M. albida*, dubbing these *M. dumetorum*. For example, Travis County contains numerous sheets assignable to both *M. dumetorum* and *M. albida* by use of Shinnery's (1951) key to species, but these do not appear to form discrete populational units. Indeed, various intermediate conditions in those characters states which purportedly distinguish between the species are found, suggesting that only a single variable taxon is concerned. Nevertheless, I might be wrong in this conjecture and, because of this, I have shown in Figure 1 the distribution of those leaf forms (by closed circles) which seem to conform to Shinnery's concept of *M. dumetorum*. It will be seen that such plants occur over a broad region, but always confined within the broad distribution of *M. albida*.

In any case, if one accepts the biological reality of *Mirabilis dumetorum*, its correct name must be *M. latifolia*, as noted in my introduction to the present paper. The latter is based upon *Oxybaphus nyctagineus* var. *latifolius* A. Gray in Torr., *U.S. and Mex. Bound. Surv. Bot.* 174. 1859. TYPE: USA. Texas: Travis Co., near Austin, May 1849, C. Wright 603 (LECTOTYPE [designated here]: GH!). Several collections were cited or referred to by Gray in his protologue. I have selected as lectotype one of two sheets bearing Wright's collection number 603, both collected in the vicinity of Austin, Texas. The islectotype is essentially sterile, while the lectotype itself has excellent fruiting material, the anthocarps are almost exactly like those of *M. albida*, both as to ornamentation and vestiture.

*Mirabilis entricha* Shinnery appears to be a form of *M. albida* with somewhat longer stem-hairs than is typical for the species. I believe that most of the other names listed in the above synonymy are reasonably certain, although I suspect that names applied to some of the Mexican collections might ultimately prove worthy of at least varietal recognition. Indeed, *M. comata* is very closely related to *M. albida*, and might be treated as a regional morphogeographical variety of the latter without much ado; I have retained the former



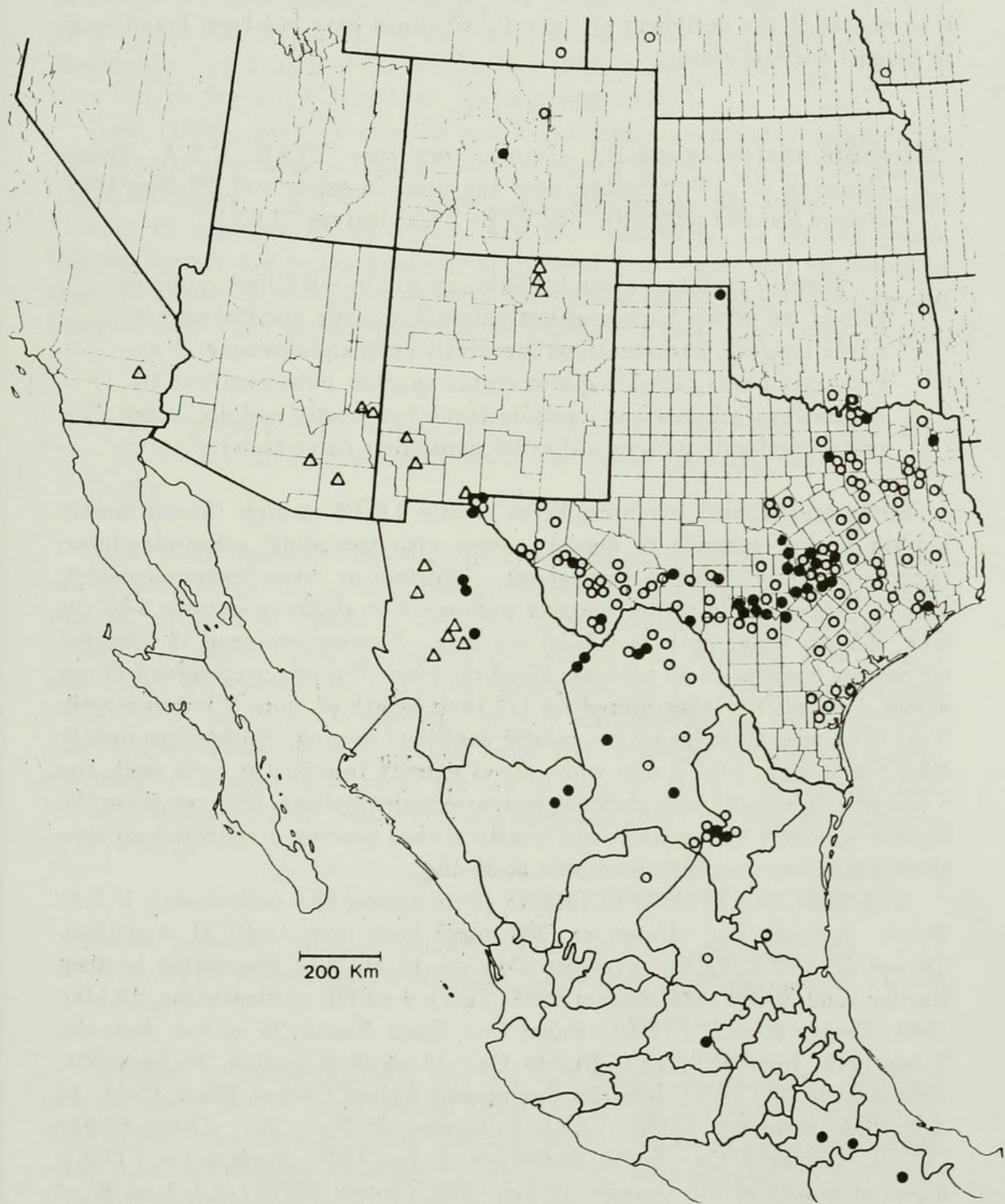


Figure 1. Distribution of *Mirabilis albida* and *M. comata* in Texas and closely adjacent areas: *M. albida*, leaves lanceolate to ovate (open circles); leaves ovate to cordate (closed circles); *M. comata* (open triangles).



as a species because it is largely allopatric with *M. albida* and undeniable intermediates at the periphery of their distributions have not been found so as to suggest varietal status.

**Mirabilis austrotexana** B.L. Turner, *spec. nov.* TYPE: U.S.A. Texas: Cameron Co.: Port Isabel, near the coast in sandy soil, 20 Nov 1964, Robert Runyon 5831 (HOLOTYPE: TEX; Isotype: TEX).

*Mirabili giganteae* (Standl.) Shinnars similis sed differt caulibus glabris vel pilosis trichomatibus patentibus saepe glandulosis (vs. rigide strigosis trichomatibus incurvatis nonglandulosisque et anthocarpis costis laevibus, inter costas sparsim pubescentibus trichomatibus minutis non caespitosisque (vs. costis nodosis, inter costas moderate pubescentibus trichomatibus caespitosis).

Stiffly erect robust perennial herbs mostly 0.8-1.5 m high. Stems mostly reddish brown, sparsely to densely pilose with spreading, often glandular, trichomes, rarely glabrous throughout. Midstem or lower leaves succulent, broadly lanceolate to ovate, sparsely pubescent to glabrous, mostly 6-12 cm long, 2-5 cm wide; petioles 0.3-2.0 cm long. Flowers arranged in terminal corymbose panicles 10-30 cm long, 10-15 cm wide. Fruiting involucres 8-12 cm across, 5-lobed, the lobes united for 1/2 their length or more. Flowers mostly 3 per involucre. Corollas rotate, mostly described as pink. Anthocarps mostly 4.5-5.5 mm long, 2.0-2.5 mm wide, about equally tapering at both ends, the 5 ribs mostly smooth and glabrous to sparsely short-pilose, between these the surface variously tuberculate, but nearly always bearing a collection of thin short-pilose hairs readily observable at 30-40 $\times$ .

REPRESENTATIVE SPECIMENS (from among 40+ collections): U.S.A. Texas. Aransas Co.: dunes, ca. 300 yards back from Gulf, 31 Apr 1965, Turner 5164 (NY,TEX). Atascosa Co.: ca. 10 mi N of Pleasanton in deep Carrizo sand, 6 Oct 1985, Nesom 5203 (TEX); 4 mi NE of Pleasanton, 19 May 1980, Turner 80-56M (TEX). Bexar Co.: Essar Ranch, W of San Antonio, 2 Jan 1948, Burr 227 (NY). Brooks Co.: 10 mi N of Encino, 16 Apr 1954, Johnston 54500 (TEX); between Encino and United Carbon Black Plant, 16 Apr 1954, Johnston 54500 (TEX); Falfurrias, 30 Nov 1951, Tharp 52-561 (TEX). Cameron Co.: South Padre Isle, 3 Jun 1966, Burlage s.n. (TEX); dunes at mouth of Rio Grande, 10 Feb 1969, Correll 36778 (LL); 5 mi W of Boca Chica, 2 May 1940, Lundell & Lundell (LL); Brazos Island State Park, 27 Aug 1977, Richardson 2545 (TEX); same locality, 26 Nov 1977, Richardson 2606 (TEX); clay dunes along Boca Chica Road near coast, 16 Jul 1935, Runyon 3507 (TEX); Point Isabel, 29 Apr 1959, Runyon 4669 (TEX). Jim Wells Co.: 2 mi S of Premont, 1-5 Aug 1921, Ferris & Duncan 3249 (MO).



Kennedy Co.: near Rudolph, S of Norias, 3 Jan 1963, *Correll 26919* (TEX).  
Lavaca Co.: ca. 18 mi SE of Yoakum, 16 Jul 1949, *Tharp 49211* (TEX).  
Medina Co.: ca. 3 mi S of Devine, 28 Oct 1952, *Correll 15709* (LL). Willacy Co.: Yturria Station, 8 May 1949, *Runyon 4321* (TEX).

Reed (1969), both by citation and annotation, inexplicably treated this very natural populational complex from southern Texas (Figure 2) as belonging to six disparate species: *M. albida*, *M. dumetorum*, *M. exaltata* (Standl.), *M. gigantea*, *M. nyctaginea*, and *M. oblongifolia*. As already noted, this was largely due to his emphasis upon habit, leaf shape, and vestiture. In short, he keyed and recognized states of these characters as representing species irrespective of their morphogeographical correlation with other characters.

*Mirabilis comata* (Small) Standl., Publ. Field Mus. Bot 8:306. 1931. BAsIONYM: *Allionia comata* Small. *Oxybaphus comatus* (Small) Weath-erby.

Reed (1969) positioned this taxon in synonymy under his concept of *Mirabilis oblongifolia*. I treat the latter as synonymous with the widespread, highly variable, *M. albida*. The type of *M. comata* is from southwestern New Mexico and is part of a populational complex largely confined to Arizona, New Mexico and closely adjacent states, including México (Figure 1). The taxon is closely related to *M. albida* but is seemingly readily distinguished by its usually cordate, long-petiolate leaves, sprawling habit and involucreal vestiture of mostly darkened trichomes, as noted in the key to species. Only a single collection has been examined from Texas (Franklin Mountains, El Paso Co., *Worthington 8472* [TEX]).

*Mirabilis gigantea* (Standl.) Shinnars, Field & Lab. 19:177. 1951. BAsIONYM: *Allionia gigantea* Standl. *Oxybaphus giganteus* (Standl.) Weath-erby.

As noted by Shinnars (1951) this is a well-marked taxon largely confined to loose sandy soils of north-central Texas (Figure 2). It was also retained by Reed (1969) who confounded its distribution by citation of specimens of yet other taxa. *Mirabilis gigantea* has the habit of *M. austrotezana* but the latter is readily distinguished by its vestiture and anthocarps, as noted in the key to species.

*Mirabilis glabra* (S. Wats.) Standl., Publ. Field Mus. Bot. 8:304. 1931. BAsIONYM: *Oxybaphus glaber* S. Wats. *Allionia glabra* (S. Wats.) Kuntze



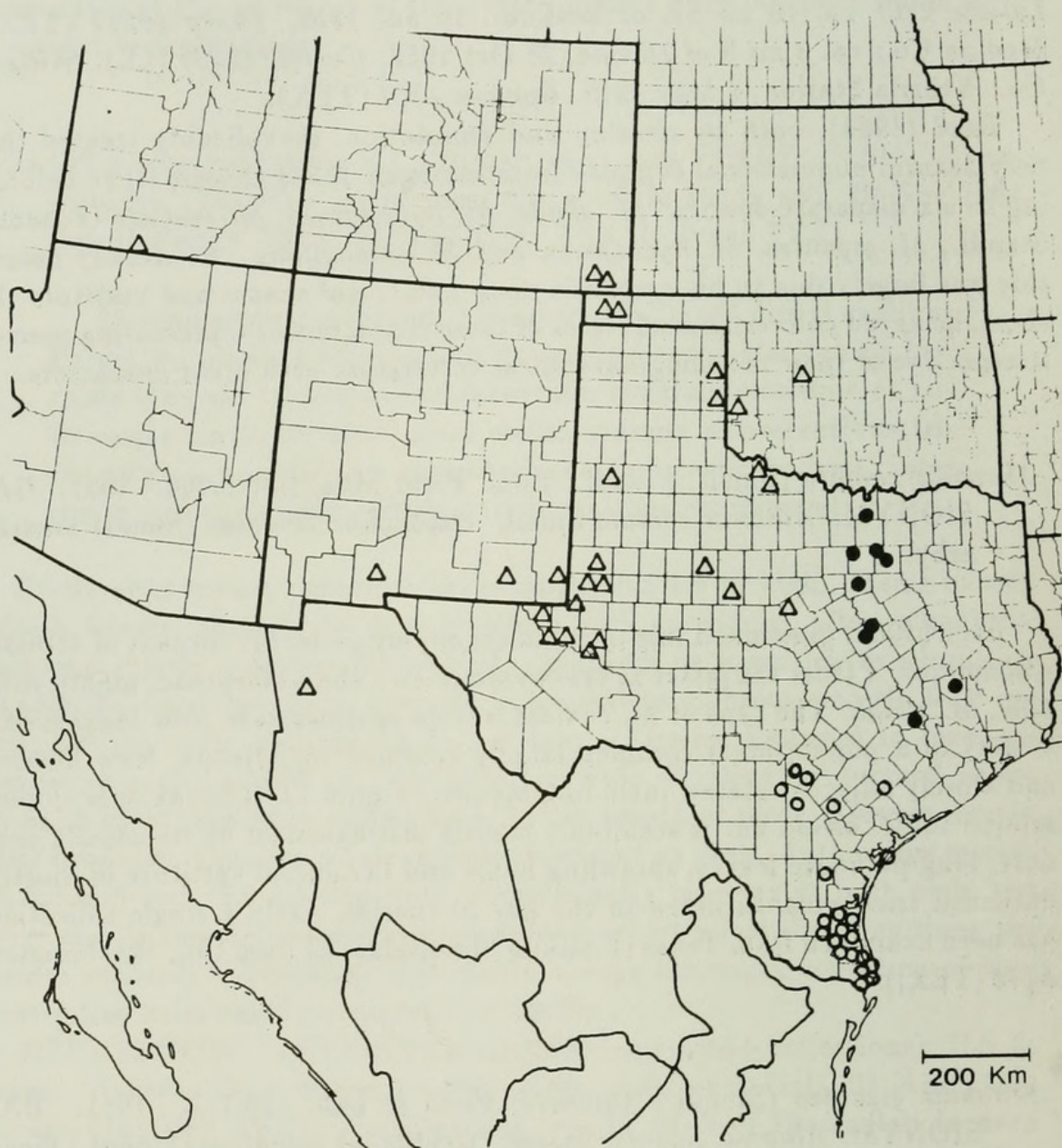


Figure 2. Distribution of *Mirabilis austrotexana* (open circles); *M. gigantea* (closed circles); and *M. glabra* (open triangles).



*Allionia carletonii* Standl.

*Allionia ciliata* Standl. *Mirabilis ciliata* (Standl.) Shinnery.

*Allionia exaltata* Standl. *Mirabilis exaltata* (Standl.) Standl. *Oxybaphus exaltatus* (Standl.) Weatherby.

I cannot distinguish *Mirabilis exaltata* from *M. glabra*, although Reed (1969) and Correll & Johnston (1970) maintained both of these, distinguishing among them by relatively trivial features (mainly leaf shape and vestiture). Shinnery (1951) also maintained *M. carletonii* and *M. exaltata* but notes that some of the former may "have pubescent fruits instead of glabrous ones". I presume that this observation was due to his misidentification of robust forms of *M. linearis* with *M. carletonii* (= *M. glabra*). In the *Flora of the Great Plains* (1986) it is noted that "Some specimens [of *M. glabra*] are difficult to distinguish from *M. exaltata* and we suspect intergradation." As already noted, I believe the two are indistinguishable. Its distribution in Texas and closely adjacent areas is shown in Figure 4.

*Mirabilis hirsuta* (Pursh) MacMillan, *Metasp. Minn. Valley* 217. 1892. BASIONYM: *Allionia hirsuta* Pursh. *Mirabilis nyctaginea* (Michx.) MacMillan var. *hirsuta* (Pursh) Heimerl. *Oxybaphus hirsutus* (Pursh) Sweet.

This taxon is recognized as a species with some reservation. Heimerl, as noted in the above (only partial) synonymy, treated it as a variety of *Mirabilis nyctaginea*, but I suspect that as treated by most American workers, it is a hodge-podge of hirsute specimens belonging to several species, mainly *M. albida* and *M. nyctaginea*. For example, Steyermark (1963), in his *Flora of Missouri* retained the species, but it seems clear from his key and distribution maps that it might be better treated as a leaf form of *M. albida*.

In the treatment of *Mirabilis* for the *Flora of the Great Plains* (Great Plains Flora Association 1986) *M. hirsuta* is said to be rare in Kansas and Missouri, and unreported from Oklahoma, but from my own map (Figure 4), it can be seen that forms referable to this taxon, as identifiable by their key, occur as far south as northern Texas and adjacent Oklahoma. In truth, I take such plants to be hirsute forms of *M. albida* but have mapped these as *M. hirsuta*. It should be noted that the specimens of *M. hirsuta* cited by Reed from Jeff Davis County, Texas are almost certainly hirsute forms of *M. albida*, both taxa occurring at the same site and apparently "intergrading" (*Hanson 506a-b* [LL,TEX]).

In short, *Mirabilis hirsuta*, if accepted as a biological entity, might best be treated within the *M. albida* complex, but its regional distribution, interpopulational variability, and typification needs additional study.



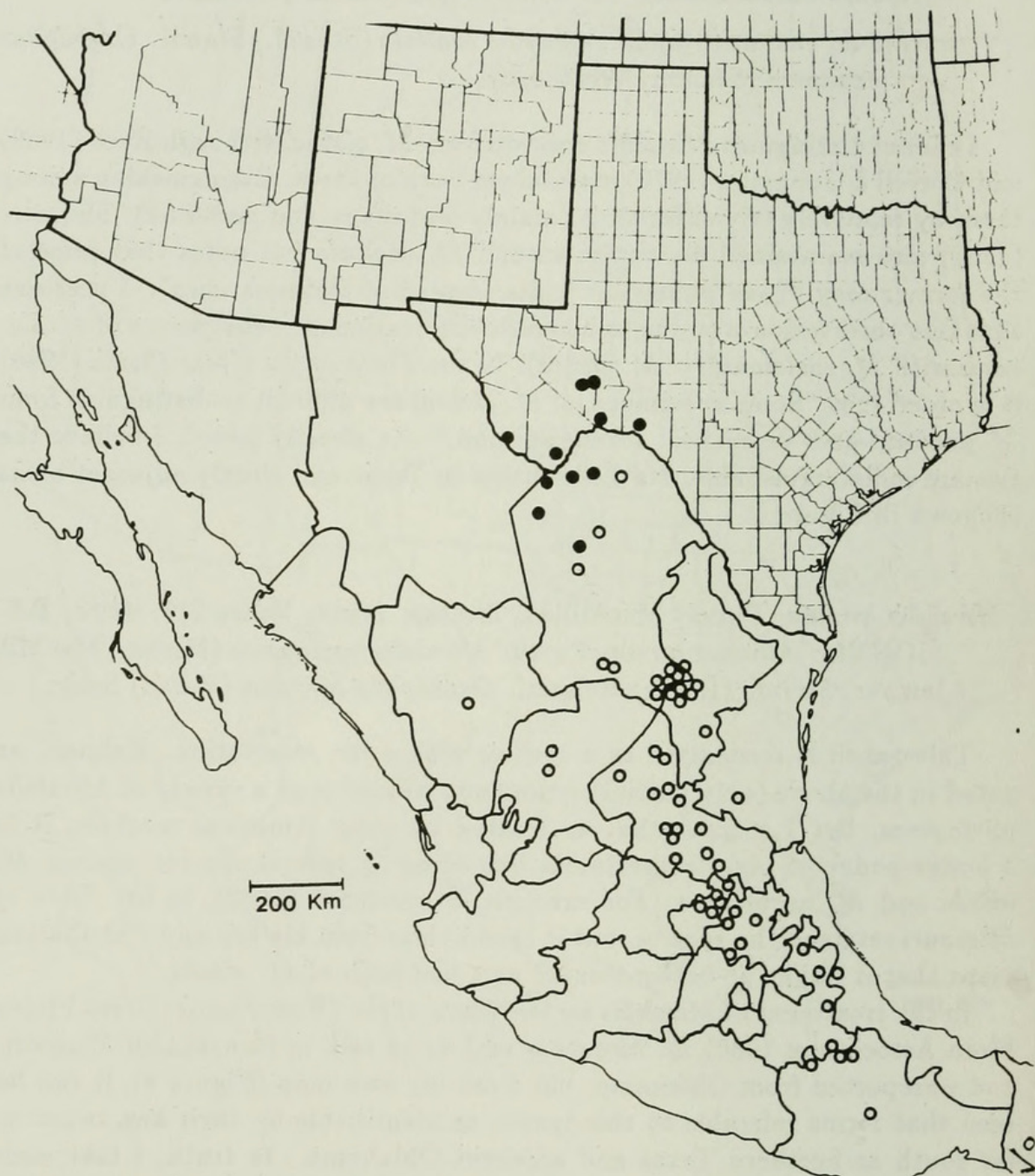


Figure 3. Distribution of *Mirabilis glabrifolia* (open circles) and the closely related *M. texensis* (closed circles).



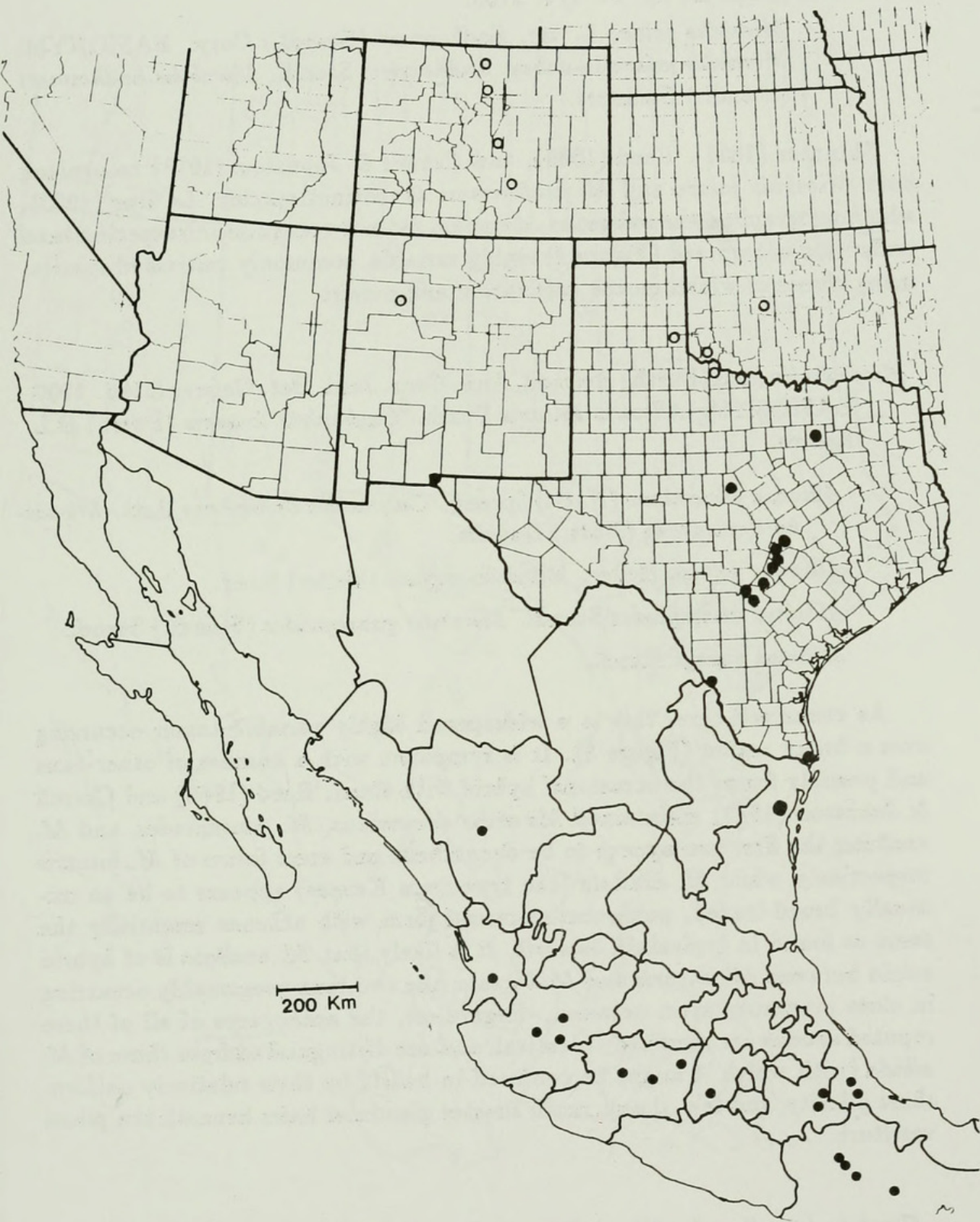


Figure 4. Distribution of *Mirabilis hirsuta* (open circles) and *M. jalapa* (closed circles) in Texas and closely adjacent areas.



*Mirabilis jalapa* L., *Sp. Pl.* 177. 1753.

*Mirabilis jalapa* L. var. *lindheimeri* (Standl.) Cory. BASIONYM: *Mirabilis jalapa* L. subsp. *lindheimeri* Standl. *Mirabilis lindheimeri* (Standl.) Shinnars.

Shinnars (1951), Reed (1969), and Correll & Johnston (1970) recognized both *Mirabilis jalapa* and *M. lindheimeri* as distinct species. Le Duc (1993), who monographed the subgenus *Mirabilis*, did not recognize infraspecific taxa under this widespread (Figure 4) highly variable, commonly cultivated species, many clones of which escape cultivation and persist.

*Mirabilis linearis* (Pursh) Heimerl, *Ann. Cons. Jard. Bot. Geneve* 5:186. 1900.

BASIONYM: *Allionia linearis* Pursh. *Oxybaphus linearis* (Pursh) B.L. Robins.

*Allionia decumbens* (Nutt.) Spreng. *Calymenia decumbens* Nutt. *Mirabilis decumbens* (Nutt.) Daniels.

*Allionia diffusa* Heller. *Mirabilis diffusa* (Heller) Reed.

*Allionia gausapoides* Standl. *Mirabilis gausapoides* (Standl.) Standl.

*Allionia vaseyi* Standl.

As conceived here, this is a widespread highly variable taxon occurring over a broad region (Figure 5). It is sympatric with a number of other taxa and possibly forms the occasional hybrid with them. Reed (1969) and Correll & Johnston (1970) maintained *Mirabilis decumbens*, *M. gausapoides*, and *M. exaltata*; the first two appear to be decumbent and erect forms of *M. linearis* respectively, while *M. exaltata* (the type from Kansas) appears to be an unusually broad-leaved, pubescent-stemmed form with achenes essentially the same as found in typical *M. linearis*. It is likely that *M. exaltata* is of hybrid origin between *M. linearis* and *M. hirsuta*, the two taxa presumably occurring in close proximity upon occasion. Regardless, the anthocarps of all of these reputed species are seemingly identical, and are distinguished from those of *M. albida* (with which it might be confused in habit) by their relatively uniform short pilosity, and few, if any, much shorter glandular hairs beneath the pilose vestiture.

*Mirabilis longiflora* L., *Köngl. Svenska Vetenska Acad. Handl.* 176. t.6, 1755.

*Jalapa longiflora* (L.) Moench

Texas material of this species belongs to the widespread *Mirabilis longiflora* var. *wrightiana* (A. Gray) Kearney & Peebles. The var. *longiflora* is largely



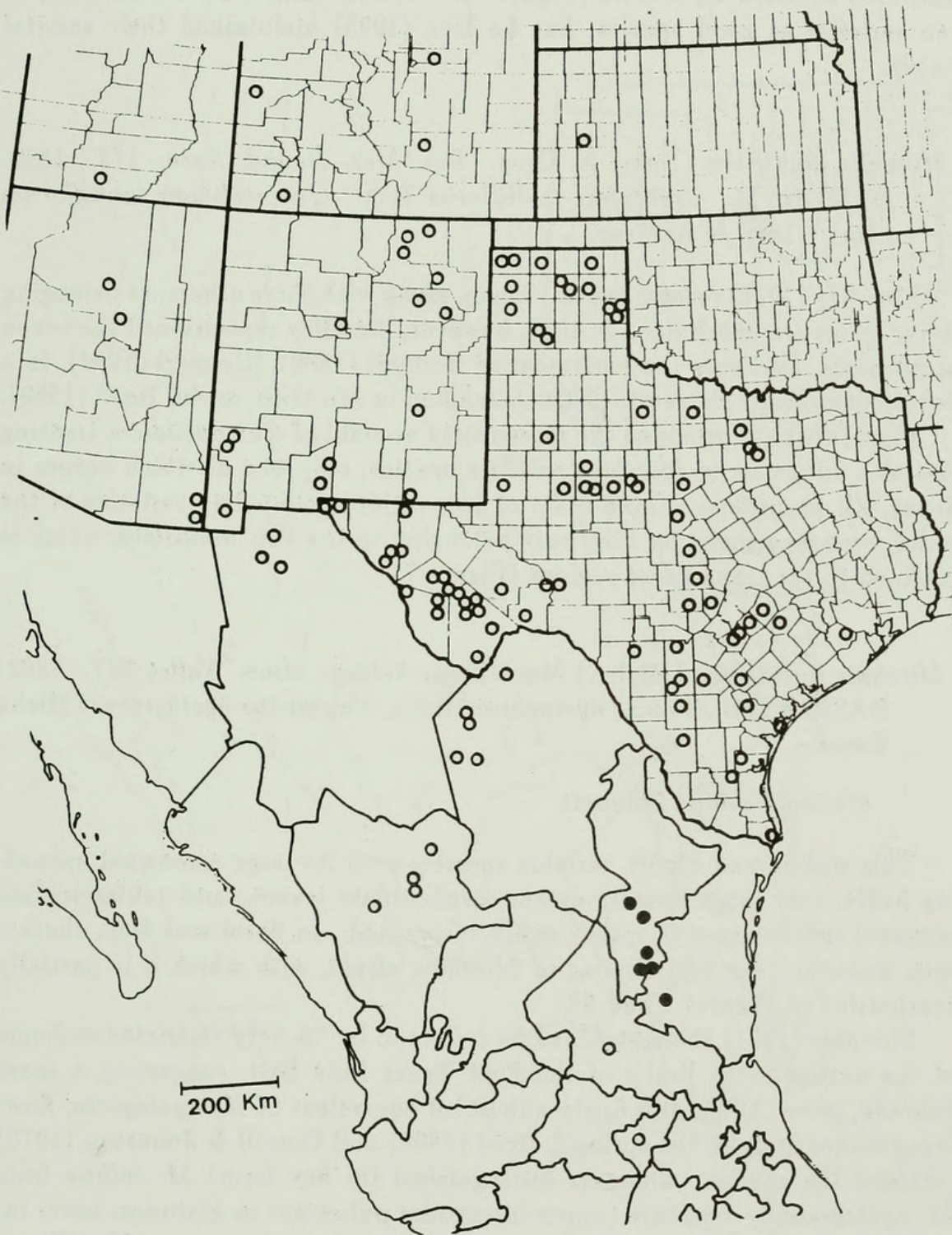


Figure 5. Distribution of *Mirabilis linearis* (open circles) and the superficially similar *M. nesomii* (closed circles).



restricted to southern México (Figure 6). Various workers have treated these two varieties as good species, but Le Duc (1993) maintained their varietal status.

*Mirabilis multiflora* (Torr.) A. Gray., *Bot. Mex. Bound. Surv.* 173. 1859.

BASIONYM: *Oxybaphus multiflorus* Torr. *Quamoclidion multiflorum* (Torr.) Torr. & A. Gray.

Standley (1911) recognized this taxon, along with three others, as belonging to the genus *Quamoclidion*. In 1931, however, Standley repositioned the taxon in *Mirabilis*, following the treatment of Heimerl (1889). Heimerl (1934), in a definitive monograph, retained *Quamoclidion* in *Mirabilis*, as did Reed (1969).

Pilz (1978) has provided the most recent account of *Quamoclidion*, treating this as a subgenus of *Mirabilis* with six species, only one of which occurs in Texas, *M. multiflora*. Three more or less regional allopatric varieties of the latter were recognized by Pilz, ours belonging to the var. *multiflora*, which is confined to the trans-Pecos regions (Figure 7).

*Mirabilis nyctaginea* (Michx.) MacMillan, *Vetasp. Minn. Valley* 217. 1892.

BASIONYM: *Allionia nyctaginea* Michx. *Oxybaphus nyctagineus* (Michx.) Sweet.

*Mirabilis collina* Shinners.

This widespread highly variable species, with its large somewhat sprawling habit, very large broadly ovate to subcordate leaves, and subfasciculate terminal inflorescence is rather easily recognized. In floral and fruit characters, however, it is very similar to *Mirabilis albida*, with which it is partially sympatric (cf. Figures 1 and 8).

Shinners (1951) thought *Mirabilis collina* to be "A very restricted endemic of the northwestern limits of the East Texas Pine Belt, suggesting a more delicate, more showy, and finely pubescent equivalent of *M. nyctaginea*; flowering rather early in the spring." Reed (1969) and Correll & Johnston (1970) retained the species. Shinners distinguished (in key form) *M. collina* from *M. nyctaginea* by vestiture (upper internodes pubescent or glabrous, lower internodes glabrous in *M. nyctaginea* vs. all internodes pubescent in *M. collina*), while Reed (1969) attempted to distinguish between these by mainly fruit characters (4 ribs in *M. collina* vs. 5 ribs in *M. nyctaginea*) and root-branching. In view of the considerable variation found in these characters, both within and between populations of *M. nyctaginea*, I have little hesitancy in treating *M. collina* as but a populational variant of the latter.



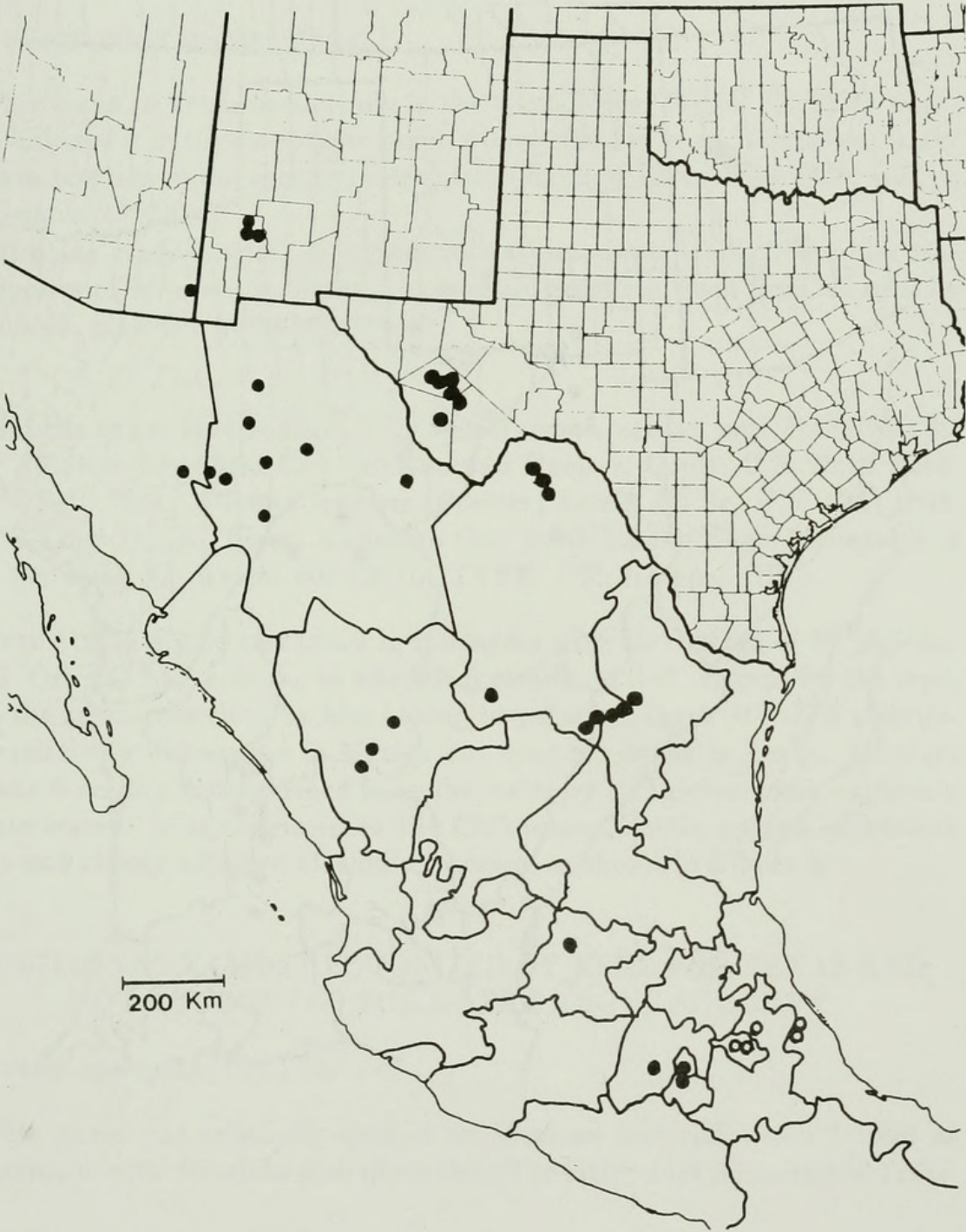


Figure 6. Distribution of *Mirabilis longiflora*: var. *longiflora* (open circles); var. *wrightii* (closed circles).



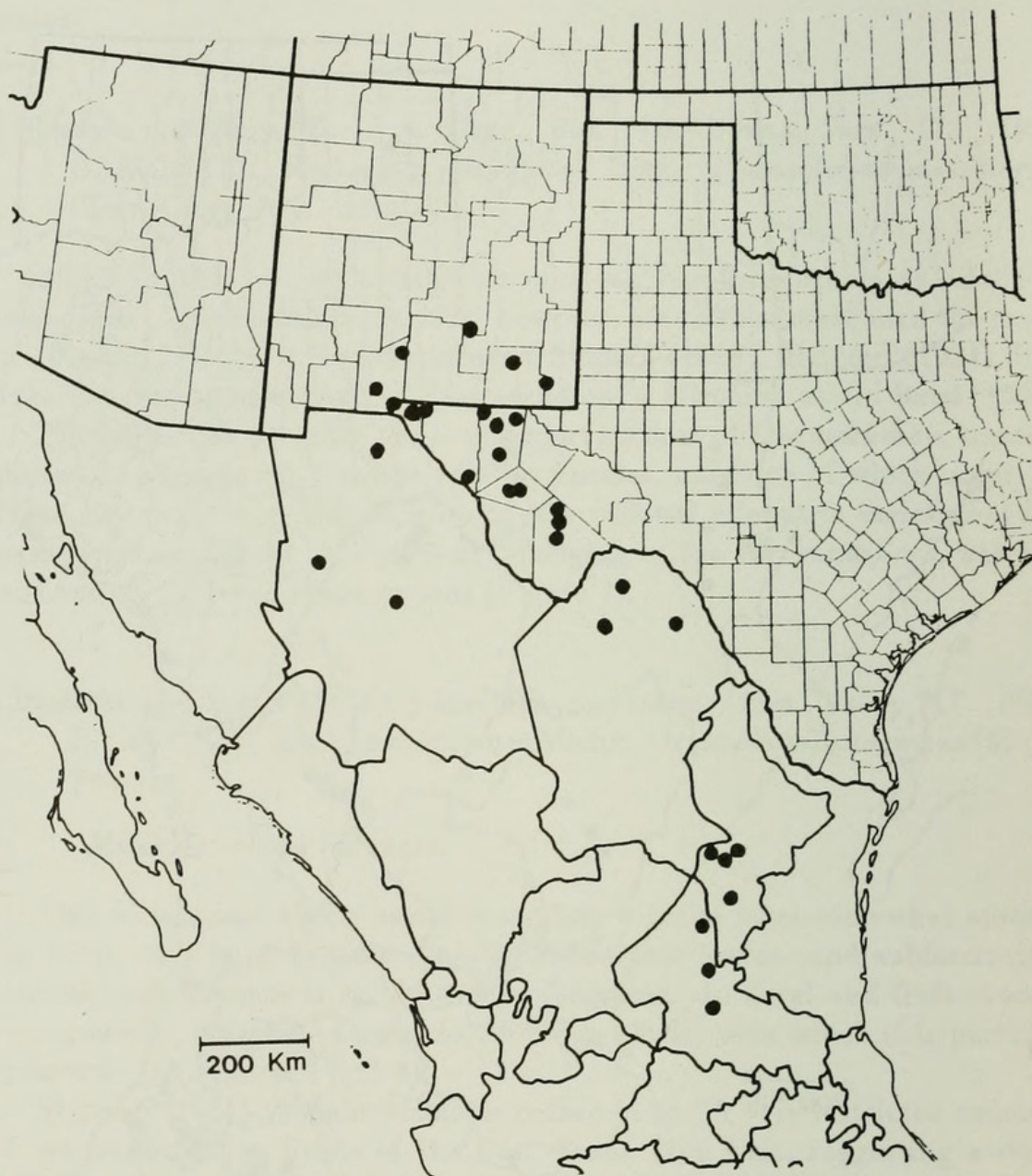


Figure 7. Distribution of *Mirabilis multiflora*.



*Mirabilis oxybaphoides* (A. Gray) A. Gray, *Bot. Mex. Bound. Surv.* 173. 1859. BASIONYM: *Quamoclidion oxybaphoides* A. Gray. *Allioniella oxybaphoides* (A. Gray) Rydb.

*Oxybaphus wrightii* Hemsl.

This taxon in Texas occurs only in the trans-Pecos (Figure 8). Early workers positioned it in the monotypic genus *Allioniella*, but most subsequent workers have positioned the species in *Mirabilis* (Heimerl 1934; Reed 1969; Correll & Johnston 1970).

*Mirabilis oxybaphoides*, in vegetative features, superficially resembles several species of *Mirabilis* in Texas, but is readily distinguished from all such by its smooth, glabrous ovoid achenes.

***Mirabilis texensis*** (Coulter) B.L. Turner, *comb. et stat. nov.* BASIONYM: *Allionia corymbosa* Cav. var. *texensis* Coulter, *Contr. U.S. Natl. Herb.* 2:351. 1894. *Allionia texensis* (Coulter) Small, *Fl. Se. U.S.* 406. 1903. TYPE: U.S.A. Texas. Hudspeth Co.: north base of Eagle Mountains, 3 Sep 1849, C. Wright 605 (HOLOTYPE: US!; Isotype: GH!).

Reed (1969) placed this taxon in synonymy with his concept of *M. glabrifolia* (G. Ortega) I.M. Johnst., to which it is closely related. Except for the type, all of the specimens cited by him belong to yet other taxa. *Mirabilis glabrifolia* is relatively widespread in México but does not occur in Texas. *Mirabilis texensis* is readily distinguished from the latter by its thicker, more uniformly cordate leaves. It is restricted to the Chihuahuan desert regions of western Texas and closely adjacent Coahuila, México, as shown in Figure 3.

#### ADDITIONAL NAMES RECOGNIZED BY REED FOR TEXAS AND NOT ACCOUNTED FOR IN THE ABOVE ACCOUNT

*Mirabilis aggregata* (Ort.) Cav.

This name was originally applied to Mexican material which I treat as synonymous with *Mirabilis glabriflora* Ort. The latter does not occur in Texas.

*Mirabilis coccinea* (Torr.) Benth. & Hook.

Reed listed this plant for Texas, but saw no specimens, nor have I. It is native to more western areas, mainly Arizona and closely adjacent states.



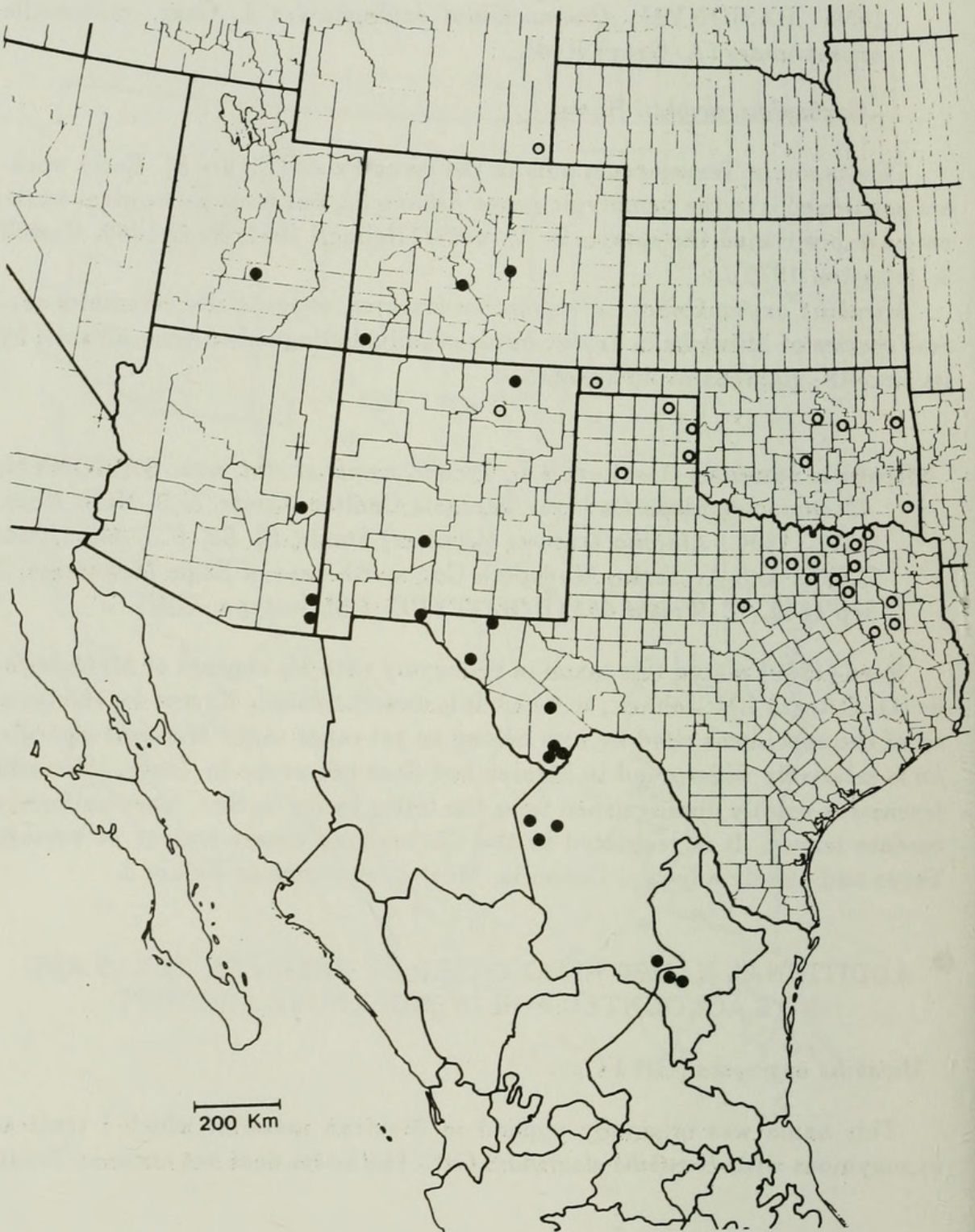


Figure 8. Distribution of *Mirabilis nyctaginea* (open circles) and *M. oxybaphoides* (closed circles) in Texas and closely adjacent regions.



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## LITERATURE CITED

- Correll, D.S. & M.C. Johnston. 1970. *Manual of the Vascular Plants of Texas*. Texas Research Foundation, Renner, Texas.
- Great Plains Flora Association. 1986. *Flora of the Great Plains*. Univ. Press of Kansas, Lawrence, Kansas.
- Heimerl, A. 1934. Nyctaginaceae, in Engler & Prantl, *Die Natürlichen Pflanzen*. 2, 16C:86-134.
- Le Duc, F.A. 1993. Systematic study of *Mirabilis* section *Mirabilis* (Nyctaginaceae). Doctoral Dissertation, Univ. of Texas, Austin, Texas.
- Pilz, G.E. 1978. Systematics of *Mirabilis* subgenus *Quamoclidion* (Nyctaginaceae). *Madroño* 25:113-132.
- Reed, C.F. 1969. *Mirabilis*, in *Flora of Texas*. 2:160-188.
- Shinners, L.H. 1951. The North Texas species of *Mirabilis* (Nyctaginaceae). *Field & Lab*. 19:173-182.
- Standley, P.C. 1909. The Allioniaceae of the United States with notes on Mexican species. *Contr. U.S. Natl. Herb.* 13:372-430.
- . 1911. The Allioniaceae of Mexico and Central America. *Contr. U.S. Natl. Herb.* 13:377-430.
- . 1918. Allioniaceae, in *N. Amer. Fl.* 21:171-254.
- . 1931. Studies of American plants V. *Field Mus. Nat. Hist., Bot. Ser.* 8:293-298.
- Steyermark, J. 1963. *Flora of Missouri*. Iowa State Univ. Press, Ames, Iowa.





Turner, B. L. 1993. "Texas species of *Mirabilis* (Nyctaginaceae)." *Phytologia* 75, 432–451. <https://doi.org/10.5962/bhl.part.8977>.

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